

SYLLABUS FOR SYSTEM MANAGER EXAMINATION
UNDER MIZORAM URBAN DEVELOPMENT AGENCY LIMITED (MUDAL)

General English (100 Marks)

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|------------------------------------|------------|
| 1. Précis Writing | : 10 marks |
| 2. Letter Writing | : 15 marks |
| 3. Comprehension of given passages | : 15 marks |
| 4. Grammar: Parts of Speech | : 20 marks |
| 5. Correct Usage and Vocabularies | : 20 marks |
| 6. Formation of Sentence | : 20 marks |
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TECHNICAL PAPER – I (150 Marks)

UNIT I – FUNDAMENTALS OF COMPUTER (60 Marks)

1. Introduction to Computing

Evolution and Generations of Computers

Characteristics and Applications of Computers

Classification of Computers

Digital Transformation and e-Governance

Emerging Technologies: Artificial Intelligence (AI), Internet of Things (IoT),
Blockchain, Big Data, Cloud Computing and Edge Computing

Green Computing and Sustainable IT

2. Computer Architecture

Functional Components of a Computer

CPU Architecture and Instruction Cycle

Motherboard and Chipset
System Bus and Expansion Slots
BIOS/UEFI Firmware

3. Processor and Memory

Multi-core and Multi-threaded Processors
Cache Memory
RAM, ROM and Virtual Memory
Memory Hierarchy
Performance Measurement

4. Storage Technologies

HDD, SSD and NVMe Storage
Optical and Flash Storage
Network Attached Storage (NAS)
Storage Area Network (SAN)
Backup Concepts
Disaster Recovery Concepts

5. Input and Output Devices

Modern Input Devices
Biometric Devices
Smart Card Readers
Scanners
Display Technologies
Printers and Multifunction Devices
Interactive Displays

6. Computer Software

System Software

Application Software

Open Source and Proprietary Software

Software Licensing

Software Development Life Cycle (SDLC)

Virtualization and Containerization (Concept)

7. Programming Fundamentals

Programming Languages

Object-Oriented Programming Concepts

Scripting Languages

APIs and Software Integration (Concept)

8. Information Technology and Society

Digital India and e-Governance

Electronic Records management

Data Privacy and Personal Data Protection

Cyber Ethics

AI Ethics

Digital Inclusion and Accessibility

UNIT II – OPERATING SYSTEMS (25 Marks)

1. Operating System Fundamentals

Types and Functions of Operating Systems

Process Management

Memory Management

File Systems

2. Microsoft Windows

Windows Operating Systems

User Accounts

Windows Security

Windows Terminal

Registry

Windows Utilities

3. Linux Fundamentals

Linux Architecture

Linux File System

Basic Linux Commands

Open-source Ecosystem

4. File and Storage Management

Files and Folders

Compression

Encryption

Backup and Restore

File Recovery

5. System Administration

Device Manager

Disk Management

Task Manager

Resource Monitor

Event Viewer
Services
Performance Monitoring

6. Command Line

Command Prompt
PowerShell Fundamentals
Basic Batch Files

UNIT III – WORD PROCESSING (20 MARKS)

1. Microsoft Word

Document Creation
Templates
Styles and Themes
Page Layout
Tables
SmartArt
Graphics
References
Table of Contents
Citations and Bibliography
Review Tools
Track Changes
Mail Merge
Accessibility Features
Microsoft 365 Collaboration
Integration of e-Office
AI-assisted Document Creation (Microsoft Copilot – Concept)

UNIT IV – ELECTRONIC SPREADSHEET (25 MARKS)

1. Microsoft Excel

Workbook Management

Formulae and Functions

Lookup Functions

Statistical Functions

Financial Functions

Data Validation

Sorting and Filtering

Conditional Formatting

Pivot Tables

Pivot Charts

Dashboards

What-if Analysis

Goal Seek

Power Query (Introduction)

Power Pivot (Overview)

Macros (Introduction)

Microsoft 365 Collaboration

AI-assisted Spreadsheet Analysis

UNIT V – PRESENTATION SOFTWARE (20 MARKS)

1. Microsoft PowerPoint

Presentation Design

Templates and Themes

Slide Master

SmartArt

Charts
Multimedia
Animation
Morph Transition
Presenter View
Recording Presentations
Presentation Delivery
Collaboration Features
Accessibility Features
AI-assisted Presentation Design (Microsoft Copilot – Concept)

TECHNICAL PAPER – II (150 Marks)

UNIT I – COMPUTER NETWORKING (35 MARKS)

1. Network Fundamentals

Types of Networks
OSI Model
TCP/IP Model
IPv4 and IPv6
IP Addressing
Subnetting
Routing and Switching

2. Network Devices

Hubs
Switches

Routers
Gateways
Firewalls
Wireless Access Points

3. Network Services

DNS
DHCP
VPN
NAT
Proxy Servers

4. Wireless Networking

Wi-Fi Standards
Wireless Security
Mobile Networks

5. Windows Server Administration

Windows Server Concepts
Active Directory
Group Policy
User and Group Management
File and Printer Sharing
Remote Desktop Services

6. Cloud Networking

Cloud Infrastructure
Virtual Networks

Microsoft Azure Fundamentals (Concept)

Network Monitoring

Network Troubleshooting

UNIT II – DATABASE MANAGEMENT SYSTEM (35 MARKS)

1. Database Fundamentals

Database Concepts

Database Architecture

Data Models

ER Modelling

Relational Database Management System

2. SQL

Data Definition Language (DDL)

Data Manipulation Language (DML)

Data Control Language (DCL)

Transaction Control Language (TCL)

3. Database Administration

Tables

Views

Indexes

Stored Procedures (Concept)

Triggers (Concept)

Transactions

Concurrency Control

Backup and Recovery

4. Database Security

Authentication

Authorization

Encryption

Auditing

5. Modern Databases

Microsoft SQL Server (Concept)

PostgreSQL (Concept)

NoSQL Databases (Introduction)

UNIT III – WEB TECHNOLOGIES (25 MARKS)

1. Internet Technologies

Internet Architecture

World Wide Web

Domain Name System

Web Hosting

2. HTML5

Document Structure

Text Formatting

Hyperlinks

Lists

Tables

Images

Multimedia

Forms

3. CSS3

Styling

Layouts

Responsive Design

4. JavaScript

Variables

Functions

Events

DOM Manipulation

Client-side Validation

5. Modern Web Concepts

REST APIs (Concept)

JSON

Progressive Web Applications (Introduction)

Web Accessibility

Search Engine Optimization (Basic)

Web Security Fundamentals

UNIT IV : CYBER SECURITY, ARTIFICIAL INTELLIGENCE AND EMERGING TECHNOLOGIES (30 MARKS)

A. Cyber Security

Information Security Principles

Cyber Threats and Malware

Firewalls

Antivirus and Endpoint Protection
Multi-factor Authentication (MFA)
Encryption
Digital Certificates
Public Key Infrastructure (PKI)
Vulnerability Assessment
Patch Management
Incident Response
Cyber Hygiene

B. Artificial Intelligence

Fundamentals of Artificial Intelligence
Machine Learning
Deep Learning
Natural Language Processing
Computer Vision
Generative AI
Large Language Models (LLMs)
Prompt Engineering
AI Ethics and Responsible AI
AI Applications in Government
AI-assisted System Administration
AI-assisted Data Analysis

C. Digital Governance Systems (Emerging Technologies)

NIC eOffice

e-Office Concept and Digital Office Environment
Knowledge Management System (KMS)

e-Office Security
Digital Signature Certificate (DSC)
Workflow Configuration
Metadata Management
Record Retention and Archival
Office Procedure in Digital Environment

UNIT V : IT GOVERNANCE, BUSINESS COMMUNICATION AND APTITUDE (25 MARKS)

A. IT Governance

IT Service Management (ITSM)
ITIL Fundamentals
IT Asset Management
Software Asset Management
Business Continuity Planning
Disaster Recovery Planning
IT Procurement
Documentation Standards
Project Management Fundamentals

B. Business Communication

Official Correspondence
Technical Report Writing
Email Etiquette
Presentation Skills
Meeting Documentation

C. Aptitude and Analytical Ability

Numerical Ability

Logical Reasoning

Analytical Reasoning

Data Interpretation

Digital Reasoning

Interpretation of AI-generated Outputs

Cyber Safety Awareness

NOTE: - *It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper.*

There is no undertaking that all the topics above may be covered in the question paper.